(No Model.) 2 Sheets—Sheet 1.

I. L. HAWKINS.

EXPANSIBLE DRUM.

No. 596,326. Patented Dec. 28, 1897.

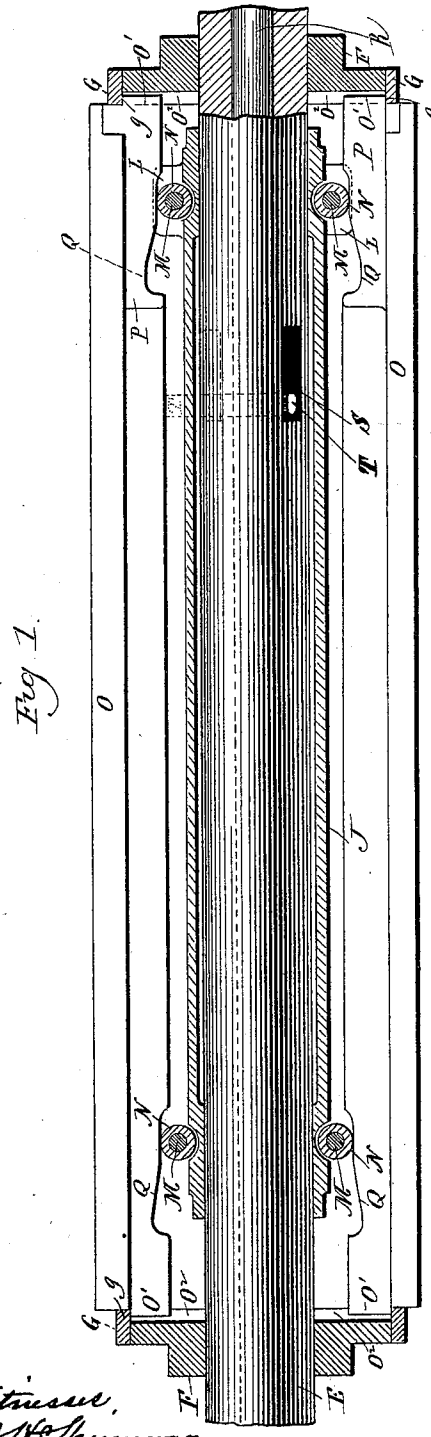


Fig. 1.

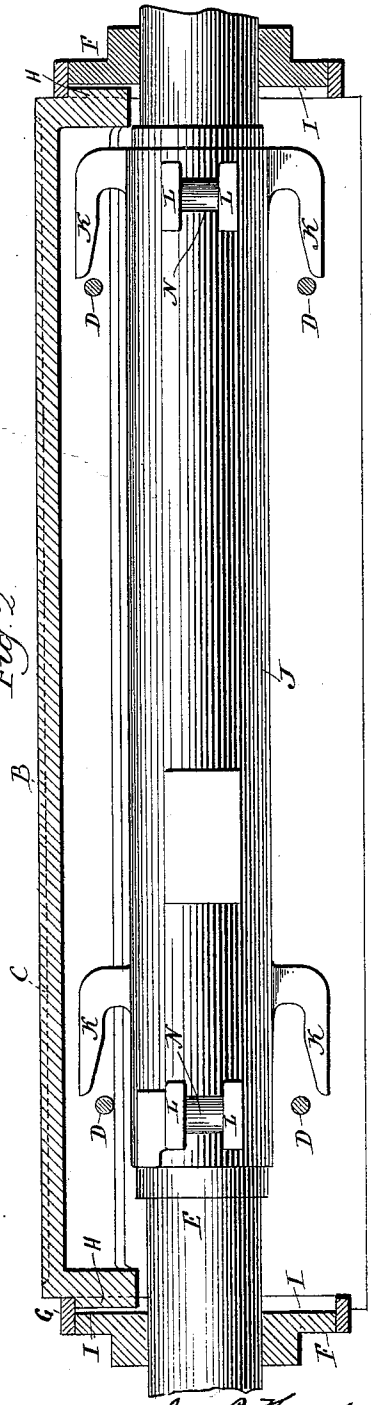


Fig. 2.

Witnesses.
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Lillian D. Kelley.

Ira L. Hawkins.
Inventor.
By atty's Carlet Seymour

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

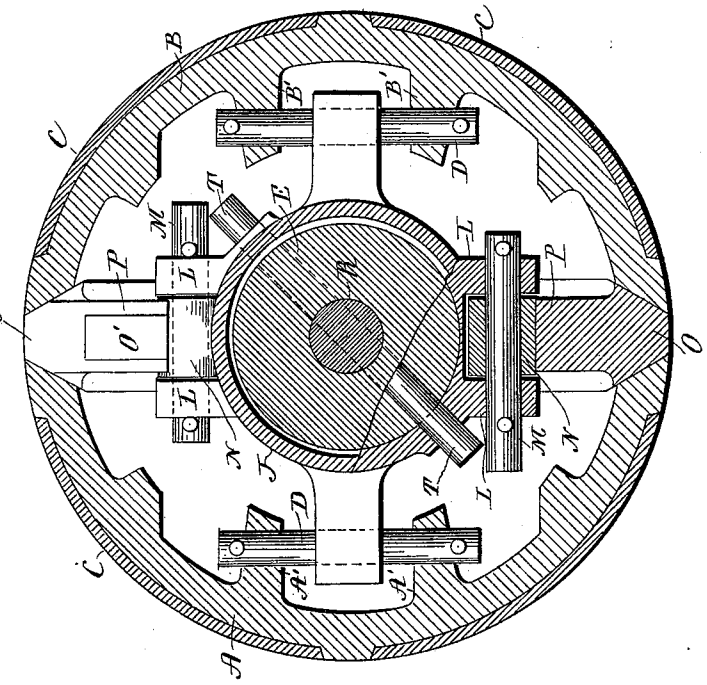
(No Model.) 2 Sheets—Sheet 2.

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Fig. 3



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UNITED STATES PATENT OFFICE.

IRA L. HAWKINS, OF WATERBURY, CONNECTICUT.

EXPANSIBLE DRUM.

SPECIFICATION forming part of Letters Patent No. 596,326, dated December 28, 1897.

Application filed June 14, 1897. Serial No. 640,591. (No model.)

To all whom it may concern:

Be it known that I, IRA L. HAWKINS, of Waterbury, in the county of New Haven and State of Connecticut, have invented a new Improvement in Expansible Drums; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a partial sectional view of a roll constructed in accordance with my invention; Fig. 2, a similar section at right angles to that shown in Fig. 1; Fig. 3, an end view of the roll, partially in section, with the head and ring removed.

This invention relates to an improvement in expansible drums for sheet metal, such as are usually employed in rolling-mills for rolling the strips of metal as they come from the rolls or from the slitting-machines. Such expansion-rolls are expanded before the metal is rolled upon them, and then contracted so that the coil of metal may be readily removed. In the more general construction of rolls of this character when expanded there is a space between the parts or segments of the roll, into which spaces the metal will extend, so as to form bends or creases in it.

The object of this invention is to so construct the parts that when expanded the surface of the roll will form a perfect cylinder and one in which the parts of the roll are readily and positively contracted; and it consists in the construction as hereinafter described, and particularly recited in the claims.

The roll is preferably formed from two nearly semicylindrical shells A B, the surfaces of which are preferably grooved to receive blocks C, of leather, which form substantially the face of the roll. Projecting inward from opposite sides of the center of each section are ribs A′ A′ B′ B′, which ribs are perforated to receive pins D, which extend transversely across the space between the said ribs. Upon the main shaft E are fixed heads F F, around the peripheries of which are rings G G, projecting inward to form flanges *g*. Between these heads and held in position by the rings G are the shells A B, which shells are formed at their outer ends with wings H, which extend into grooves I, formed in the inner faces of said heads. Around the shaft E is a sleeve J, which is formed at opposite sides with bevel-ended fingers K, adapted to engage with the pins D. From the periphery of this sleeve, at points intermediate between the fingers, project lugs L L, which are perforated to receive axles M, upon which are mounted rollers N. Resting upon these rollers are wedges O, the sides of which are beveled corresponding to the beveled edges of the shells, the faces of the wedges corresponding in curvature to the curvature of the face of the shells, so that when projected outward between the shells the wedges will complete the circumferential line thereof. The flanges P of the wedges, which rest upon the rollers N, are cut away, forming inclined or cam faces Q, and the ends of the flanges project outward, forming wings O′, which engage with radial slots O^2 in the head F and so that the flanges are held in position in substantially the same manner as the shells. The sleeve is keyed to an operating-rod R, which extends into the center of the shaft E, said shaft E being formed with slots S, through which the key T extends, so that the rod and sleeve may have transverse movement independent of the shaft.

When ready to receive the strip of metal, the wedges, as shown in Fig. 3, are forced outward between the edges of the shell and so as to form a roll with a complete surface. These wedges are forced outward by the movement of the operating-rod R, which as drawn outward moves the sleeve and hence the rollers to the right and so that the flange of the wedge riding on the roller will be lifted thereby and its face forced outward between the shells. As the sleeve thus moves to lift the wedges it also withdraws the fingers K from engagement with the pins D, thus releasing the shells, which are permitted to be forced outward by the wedge until limited in their movement by the engagement of the wings H with the flange *g*, which also limits the outward movement of the wedges. The strip is then wound upon the roll in the usual manner, except that the leather facings in the shells assist in holding the strip to the roll and prevent slipping. When the strip is entirely wound, the rod R is forced inward, which

moves the sleeve E to the right, thus causing the fingers K to engage with the pins D and draw the shells inward. At the same time the roller N passes into the incline or cam Q, which permits the inward movement of the wedges, which inward movement is caused by the action of the inclined edges of the shells upon the inclined sides of the end of the wedge. When thus contracted, the strip is readily removed in the usual manner.

Preferably the drawing fingers and rolls will be applied to the opposite ends of the sleeve, which extends substantially the entire length of the roll, but in short rolls one pair of fingers may be found sufficient.

With a roll thus constructed it will be seen that when expanded a complete roll is formed and without broken spaces between the sections. With the simple arrangement of rolls and fingers mounted on the sleeve the parts are positively and easily operated.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An expansible drum, comprising two segmental shells, wedges interposed between the edges of said shells, a shaft upon which said shells and wedges are supported, a sleeve on said shaft within said shells, and formed with fingers adapted to draw said shells together, and means for forcing said wedges outward, and a rod extending through said shaft, and connected with said sleeve, whereby said sleeve may be moved longitudinally upon said shaft, substantially as described.

2. An expansible drum comprising two shells formed with inwardly-extending ribs, pins extending transversely through said ribs, and wedges between the edges of said shells, a shaft on which said shells and wedges are mounted for rotation, a sleeve mounted on said shaft, and carrying bevel-ended fingers for engagement with said pins, and means also carried by said sleeve for forcing the wedges outward, a rod extending through said shaft, and a connection between said sleeve and rod, whereby the sleeve may be moved longitudinally on the shaft, substantially as described.

3. An expansible drum, comprising two shells formed with inwardly-beveled edges, and two wedges formed with beveled sides corresponding to the bevel on the shells, a shaft, and means for supporting and holding the said shells and wedges thereon, a sleeve surrounding said shaft within said shells, and carrying fingers for engagement with said shells, and rollers upon which the flanges of the said wedges rest, said flanges formed with cam-surfaces, a rod extending into said shaft, and keyed to said sleeve, whereby said sleeve may be moved transversely to said shaft, and whereby said fingers and rolls are operated to force the wedges outward or draw the shells inward, substantially as described.

4. An expansible drum comprising two segmental shells having leather faces secured to their surfaces and so as to be substantially flush therewith, wedges interposed between the edges of said shells, a shaft upon which said shells and wedges are supported, a sleeve on said shaft within said shells, and formed with fingers adapted to draw said shells together, and means for forcing said wedges outward, and a rod extending through said shaft and connected with said sleeve, whereby said sleeve may be moved longitudinally upon said shaft, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

IRA L. HAWKINS.

Witnesses:
WILLIAM J. RICHARDS,
GEORGE P. WATROUS.